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ABSTRACT

Three studies investigated the nature of the author-reader relationship during discourse comprehension and production, as well as the influence of selected factors on the author-reader relationship. The first study produced data indicating that the relationship is susceptible to subtle variations in the identity of the author. In those situations when readers were familiar with the topic and likely to identify with the author, they were more likely to recall more and be more critical of their reading. The second study demonstrated how topic familiarity and discourse style influenced the relationship across successful and less successful reading experiences. The more successful readers were more self-initiating with respect to their role as readers and their sense of what the author was trying to do than were less successful readers. The third study highlighted how shifts in the author-reader relationship were manifested for both readers and writers. Taken together, the data afford a description of how readers negotiate meaning with a sense of who the author is and what he or she is trying to do. The data suggest that successful readers approach texts with two sets of concerns: what the author is trying to get them to think and do and what they themselves deem they need to do. (Materials used in the studies are appended.) (FL)

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CENTER FOR THE STUDY OF READING

Technical Report No. 276

AUTHOR'S INTENTIONS AND READERS' INTERPRETATIONS

Robert J. Tierney, Jill LaZansky
University of Illinois at Urbana-Champaign
T. Raphael
Michigan State University
Philip R. Cohen
Fairchild Camera & Instrument Corp.
Advanced Research & Development Lab.

May 1983

University of Illinois
at Urbana-Champaign
51 Gerty Drive
Champaign, Illinois 61820

Bolt Beranek and Newman Inc.
50 Moulton Street
Cambridge, Massachusetts 02238

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Abstract

Reports three investigations which examine the nature of the author-reader relationship during discourse comprehension and production as well as the influence of selected factors upon the author-reader relationship. In the first investigation, the author-reader relationship and its effect upon comprehension are studied against a backdrop of two factors: an author's stance and a reader's prior experience with the topic. In the second investigation, the effects of topic texts varying in familiarity and discourse type (dialogue versus nondialogue) are studied alongside of a detailed analysis of the strategies readers use as different author-reader relationships are established. A third investigation examines how readers view their counterpart--the writer--and how writers view their counterpart--the reader--in the context of thinking-aloud about what is being written and what is read. Taken together, the data afford a description of how readers negotiate meaning with a sense of who the author is and what she is trying to do. From the data it is argued that successful readers approach texts with two sets of concerns: what the author is trying to get them to think and do and what they themselves deem they need to do. Reading is characterized as transaction between readers and writers in which the reader acts as his own writer and the writer her own reader.

Author's Intentions and Readers' Interpretations

It is the purpose of this paper to consider readers' sense of the communicative nature of reading, and the power of that sensibility to drive the inferences they generate. The view of text we are advocating is that the production and comprehension of text are specific acts. As Bruce (1981) stated, "Texts are written by authors who expect meaning-making on the part of readers and read by readers who do the meaning-making" (p. 309). Writers, as they produce text, consider their readers--they consider the transactions in which readers are likely to engage. Readers, as they comprehend texts, respond to what writers are trying to get them to do as well as what the readers themselves perceive they need to do. Consistent with these notions we contend that reading and writing are both acts of composing engaged in as individuals transact with each other and their inner selves. Furthermore, these composing acts or transactions are basically the same as those which occur daily within the context of negotiations between people.

With this view of text, we believe that most investigations of comprehension to date have given fairly decontextualized accounts of readers' inferencing behavior. Certainly through detailed analyses attempts have been made to characterize inferencing behavior across familiar and non-familiar text read by readers who differ with respect to topic-related knowledge; and, likewise, there exist systematic schemes for examining inferences generated in response to selected text features (Collins, Brown, & Larkin, 1977; Frederiksen, 1975, 1977a, 1977b, 1978; Trabasso & Nicholas, in press; Warren, Nicholas & Trabasso, 1977).

However, these efforts fall short of providing a pragmatic account of these phenomena. Frederiksen (1977) alluded to the worth of a more pragmatic-based perspective, suggesting that a theory of inferencing in reading comprehension must not only "specify the types of inferential operations which occur and the discourse contexts in which they occur, but it also must account for the processes which control inference" (p. 319). "What is needed," according to van Dijk (1976), "is a pragmatic component in which rules, conditions and constraints can be formulated based on systematic properties of (speech acts) and communicative contexts" (p. vii). Unfortunately, despite the fact that various scholars (rhetoricians, sociolinguists, theoretical linguists, composition researchers, and computer scientists interested in natural language processing) have converged upon a speech act theory for explaining the pragmatic aspects of language and language processing, there has been little systematic examination of these issues as they pertain to comprehending written discourse. It is with this purpose in mind that the present paper is developed.

With a view to examining the notion that the products of reading and writing are "situated accomplishments" (Cook, 1973), we report our explorations of the interactions between readers and authors as they become environments for each other. We will begin by proposing why it is that readers make assumptions about authors. Then a large portion of the paper will be devoted to a description of three investigations, each of which focussed upon the nature of author-reader interactions.

Role of Readers' Assumptions

The concept of persuasive speech has evoked the argument that while the attitude a speaker produces in a listener and the nature of the speaker's argument account for much of the persuasive effect speech may have, it is, nonetheless, the character of the speaker which is "the most important of all means of persuasion" (in The Rhetoric of Aristotle, 1932). Lawson (1960) attempted to explain this point in the following way.

> You cannot be much affected by what he (the speaker) says if you do not look upon him to be a Man of Probity, who is in earnest, and doth himself believe what he endeavoreth to make out as credible to you. (p. 172)

A similar argument has been proposed to explain the persuasive effect of written discourse. The term ethos, introduced by Aristotle, is frequently resurrected to describe the character of the speaker that surfaces in text situations, often creating for readers the sense of having been spoken to. The essence of the argument is that the ethos portrayed through a text is integral to the persuasive effect of the text, as it projects to varying degrees the author and his sense of the situation.

Our purpose in raising the issues of persuasive speech is to suggest two notions: first, that as Firth (1957) posits, language is fundamentally "a way of behaving and making others behave;" and second, listeners are compelled either knowingly or intuitively to interpret what is spoken in the context of who is speaking, and thus find their interpretative efforts bound by both a message and its creator. The former notion is not the result of a newly applied logic. It is born out of the belief that "a theory of language is part of a theory of action," that in the words of Searle (1969), language is rule-governed intentional behavior, "that

speaking a language is performing speech acts, acts such as making statements, giving commands, asking questions, making promises, and so on; and more abstractly, acts such as referring and predicting . . ." (p. 16). The study of what many refer to as linguistic acts has become embedded in the larger study of plans and social actions, a theoretical outlook which attributes much of what has traditionally been considered the outcome of knowledge which is exclusively linguistic, to knowledge about how plans are formulated and executed in social settings. The critical assumption here is that understanding plans is crucial to understanding or interpreting actions; in the case of language, knowing why a speaker is saying what he is saying is critical to interpreting the meaning of what the speaker is saying.

The second notion, that listeners are compelled either consciously or intuitively to interpret what is spoken in the context of who is speaking, is an outgrowth of the more general argument that discourse is only meaningful in its context of situation; context constituted, in general, "by what people are doing and when and where they are doing it" (Erickson & Schultz, 1977, p. 6). This "doing" (by saying) is both similar to and distinguishable from other "doing" (by saying) as a result of the intentions, knowledge, beliefs, expectations, and interests which shape the plans and goals of speakers, as well as the assumptions of their listeners. That is, just as we can talk about context in terms of what, when and where "doing" has occurred or is occurring, we can also talk about "doing" in terms of why and how the doing is being executed. Thus rather than simply a chain of utterances, discourse (e.g., conversation) can be characterized as a matrix of utterances and actions bound together by a web

of understandings and reactions (Labov & Fanshel, 1977); and the task of comprehension as forming "a model of the speaker's plan is saying what he said such that this plan is the most plausible one consistent with the speaker's acts and the addressee's assumptions (or knowledge) about the speaker and the rest of the world" (Green, 1980, p. 14).

The application of these two notions to explain text comprehension is not altogether unreasonable or new. Fillmore (1974), for example, in the Future of Semantics describes the interpretative efforts of readers in this way.

> A text induces the interpreter to construct an image or maybe a set of alternative images. The image the interpreter creates early in the text guides his interpretation of successive portions of the text and these in turn induce him to enrich or modify that image. While the image construction and image revision is going on, the interpreter is also trying to figure out what the creator of the text is doing--what the nature of the communication situation is. And that, too, may have an influence on the iamge creating process. (p. 4)

The same argument can be made with respect to text comprehension; that is, what enables the utterance to be interpreted is an understanding of what the author is doing. Discerning the nature of the authors' plans is tantamount to determining the nature of that communication. For that purpose, readers rely on not only what they may know about a topic (the subject of an author's discourse), but also on what they might be able to infer about why the author is saying what he is saying and who the author perceives his audience to be. Readers' plans capture that information by linking actions (what an author has done) with goals and intentions (the author's purpose). Bruce (1980) points out that "failure to understand the author's intentions can cause problems for all levels of comprehension,

from 'getting the main idea' to the subtle insights expected of skilled readers" (p. 380). This would necessarily be the case since a failure to understand the author's intentions would result in a failure to link the author's actions with his purpose. Further, "in cases in which the reader does understand adequately, the ability to perceive the author's intentions can still make the difference between minimally sufficient comprehension and deep understanding of a text" (Bruce, 1980, p. 380). One must ask, then, if readers do infer or imagine "a speaker or set of circumstances to accompany the quasi-speech act" (Ohmann, 1979) how are these inferences about the communicative situation brought into effect.

The data from three investigations reported herein addresses what readers do as they assume different relationships with authors. In the first investigation, the reader-author relationships and its effect upon comprehension are studied against a backdrop of two factors: an author's stance and a reader's prior exposure with the topic. In the second investigation, the effects of topic familiarity and variations in discourse style are studied alongside a detailed analysis of the strategies readers use as different author-reader relationships are established during reading. Our third investigation examines how writers view their counterpart--the reader--and how readers view their counterpart--the writer--in the context of thinking-aloud about what is being written and later read.

While the three investigations appear disparate, they provide at least some initial support for our overriding hypothesis that the nature of the author-reader relationship has a powerful effect upon what evolves during reading as well as from reading. The studies afford an examination

of the negotiations between readers and writers, details of those factors which influence the reader-author relationship.

Examining the Intentions of Authors and the Interpretations of Readers

The remainder of the paper describes the three investigations in detail.

Investigation I

Our virst investigation (Tierney, LaZansky, Raphael & Mosenthal, 1980) examined whether the author-reader relationship changed when texts were written from different authors' stance and systematically varied in terms of topic familiarity. Taking an essay written by Gerald Faber on student rights, we imposed two sets of four stances upon the message. One set of four was adapted to an office setting, and included along with a neutral stance, the stance of a corporation executive recently appointed vice president in charge of personnel, a recently dismissed corporation executive, and a clerk typist. The second set of four was adapted to a college setting, and in addition to a neutral stance, included the stances of a recently dismissed college instructor, a recently appointed vice-president in charge of student affairs, as well as a student majoring in social psychology. All eight of the essays were entitled, "Are you a Slave?" (see Example 1).

Ninety-six university students enrolled in an undergraduate psychology course participated in the study; each student read a randomly assigned essay, "Are You a Slave?", as delivered from one of the eight author perspectives. What followed were a recall task, an importance rating of

information included in the essay, and an assessment of likely-to-be-made inferences. In addition, a series of probes required the reader to reflect upon and then evaluate the author's intentions, beliefs, knowledge, and expectations about his message and his audience. Three major sets of probes were developed to identify the perceptions of the author. One set consisted of twenty items designed to measure the extent to which students perceived the author as clear, logical and informative. Students' responses to the probes were intended to serve as a measure of the perceived "cooperativeness" of the author; for example: Was the author brief and to the point in the presentation of his/her arguments? Were the arguments consistent with the purpose(s) of the text? Students were asked to respond to each of the twenty probes via a rating scale. A second set of probes also consisted of twenty items that required a rating response. The purpose of this second set was to measure the extent to which students perceived themselves to be members of the author's intended audience of readers; for example: Do you think the author was addressing the article to you? Do you think the author highlighted information to which he or she knew you would relate? Those probes were an attempt to measure the perceived "intimacy" of the communication; that is, the extent to which a student felt as though he or she were addressed and understood by the author. A third set of probes required readers to assess the author's age, sex and political stance, as well as estimate when and where the essay might have been published.

Insert Example 1 about here.

Two major findings emerged. While there were no differences in how readers rated what was and was not important, there were differences in how much readers recalled, deemed as likely-to-be-made inferences, as well as large differences in how readers characterized the author in terms of their relationship to him. Specifically, there were significant differences between subjects who read one of the four "college scenarios" and those who read one of the four "office scenarios" with respect to three factors: students' perceptions of the intimacy of the communication, $F(1,88) = 20.15$, $p < .01$; students' perceptions of the author's general political stance, $F(1,88) = 4.21$, $p < .05$; and students' perceptions of such physical characteristics of the author as age, $F(1,88) = 16.87$, $p < .01$. Second, when subjects read a version set in what might be deemed the more familiar setting of two (i.e., the college setting), and which reflected a stand more closely aligned to that of our readers (i.e., that of a social psychology major), the readers recalled more information, rated the communication as intimate, but, at the same time, were more critical of the author's logic and clarity. In contrast, those texts written from the stance of a college administrator or an executive were perceived to be less intimate communications when compared with either a neutral stance, the perspective of a social psychology major, or the disposition of an office worker.

These data suggest that with subtle variation of the author's stance and topic-familiar, we were able to create variance which we argue is related to different author-reader collaborations being established by our subjects. That is, since the variance that surfaced can be accounted for in terms of the existence of different author-reader relationships

established in conjunction with the same text written from different author perspectives, we then have empirical evidence that the readers' prior experience with a topic in combination with sense of the author's purposes and goals exerts a powerful influence on the author-reader relationship that develops in the course of text interpretation. That is, the reader's perception of the "doer" (i.e., the author) influenced their interpretation of what was "done."

Investigation II

In the second investigation (Tierney & Raphael, 1981; Raphael & Tierney, 1981), the author-reader collaboration and its effects upon comprehension were studied in two studies which were run parallel to one another. The first study observed the effect of topic familiarity upon the reader's stance inferencing behavior and their perceptions of the author's intentions, knowledge and expectations about his message and his audience. Topic familiarity was controlled for by holding theme constant and varying the familiarity of the content. The passages included in Example 2 illustrate how a "building" theme was maintained across passages while individual passages were varied in the familiarity of the particular topic addressed (i.e., building a treehouse vs. building a factory). The second study examined the effect of discourse style (text with and without dialogue) upon readers' perceptions of the author and the reader's inferencing behavior. The passages in Example 3 illustrate how, for purposes of observing the effect of text, topic was held constant, while one aspect of text--the presence or absence of dialogue--was manipulated across passages. This enabled us to look at the effect of different

presentations of the same information. Two passages to represent each of the four text types (topically familiar, topically unfamiliar, dialogue, non-dialogue) were developed for a total of eight passages across the two investigations, each passage approximately 300 words in length.

Insert Examples 2 and 3 about here.

Inconsistent information was then systematically embedded in all passages at both the superordinate and subordinate levels; some instances of embedding occurred at points in the text where the author directly addressed the reader; for example: "Try it, I know you will like this game" was replaced with "try it, I know you will hate this game." It was our hope that the inconsistencies would have the effect of "shoving" the author-reader relationship sufficiently to: (a) prompt readers to reflect upon their expectations with respect to authorship; and (b) allow us to observe how the effects of topic and text mode tend to manifest themselves in readers' metacognitive awareness and related inferencing behavior.

Forty-three fifth grade students of varying reading abilities participated in the study. Each student, meeting individually with an experimenter, read silently and recalled orally four passages. Following each recall, students answered selected questions classified as either background knowledge or text-based (Pearson & Johnson, 1978), depending on the passage, then reread orally each selection and responded to a set of predetermined probes. The probes were questions directed at targeted information; targeted information included both inconsistent insertions and ideas which were left as the author had stated them. It was the purpose of

the probes to address both the extent to which the readers were aware of the inconsistencies, as well as reader's perceptions regarding author intentionality. At the various interview points, for example, students were asked: "What does _____ mean? Does it make sense? What information did you use to figure this out? How much would you rewrite so that it would be easier to understand?" The use of interview probes such as these in conjunction with embedded inconsistencies was an effort on our part to break away from some of the more rigid applications of the error detection paradigm as noted by Winograd and Johnston (1980).

Students' responses to the passages were examined first in terms of the relative amount of text-based and reader-based information manifested in the recalls. For this purpose, recalls were matched against a simplified propositional analysis of the text, and for each student scores were derived which represented whether each idea unit reproduced, paraphrased, or integrated the information represented within the text. Second, students' responses to selected text-based and reader-based questions were examined with respect to accuracy. Third, responses to probes directed at targeted information were used to determine whether or not students recognized the embedded inconsistencies, as well as how they attempted to resolve them. Where students recognized insertions to be inconsistent, each explanation or method of rationalization was categorized into one of 13 categories. Figure 1 includes a listing of these categories. Fourth, oral reading miscues (insertions, substitutions, omissions, repetitions, and pauses) which occurred during students' rereading of the text were coded. Fifth, we attempted to note the point at

which an inconsistency was perceived; that is, whether individual readers appeared to recognize an error during reading, free recall, probed recall, oral reading, the interview, or during debriefing. Finally, we examined these data across eight students rated as very good readers and eight students rated as poor readers.

Insert Figure 1 about here.

Although less than ten percent of the readers' free recalls included reference to any item which involved inconsistent information, the interviews indicated that over ninety percent of the readers either developed a well-reasoned account within which the inconsistencies "made sense," or recognized the inconsistencies as errors. With this in mind, a series of chi-square analyses were undertaken to describe whether the methods subjects used to resolve inconsistencies (methods which they described during the interviews), varied across texts, and to what extent these methods might be related to a reader's willingness to negotiate an interpretation in light of what the author was trying to get them, as readers, to do.

The analyses of the data by error type (superordinate idea, subordinate idea, or "direct" comment by the author) within each text type (topically familiar, topically unfamiliar, dialogue and non-dialogue) suggested that students resolved inconsistencies differently depending upon the type of error being resolved. Within all but the topically unfamiliar condition, significant chi square statistics were obtained across error type ($\underline{X}^2$ = 38.56, 41.52, 71.78; $\underline{DF}$ = 24; $\underline{p} < .01$). That is, within three of the four conditions, the methods readers used to resolve inconsistent

information varied across types of inconsistencies. No significant differences surfaced in the context of the topically unfamiliar condition.

When the data was analyzed by text type, differences arose between the two familiarity conditions as well as between the two dialogue conditions which were not tied to specific error types. Furthermore, the differences were most marked when good readers were compared with poor readers. Two data sources supported these findings. First, an analysis of the miscue data revealed that more substitutions, more pauses and fewer omissions were made at the point of an inconsistency during the oral reading of topically familiar material as contrasted with topically unfamiliar material. Similarly, in the dialogue condition as opposed to the nondialogue condition, readers exhibited more insertions, substitutions, and fewer omissions. Second, the interview data revealed significant differences between the dialogue and nondialogue conditions as well as between the topically familiar and topically unfamiliar conditions across readers' selected methods for resolving inconsistencies. In particular, with respect to the two dialogue conditions, readers in the nondialogue condition rarely assumed the presence of an indirect speech act when faced with an inconsistency which appeared as a "direct" comment by the author. However, in the dialogue condition, assuming the use of an indirect speech act was a method of resolution frequently invoked in similar circumstances. Among the differences that existed across familiarity conditions, when faced with a superordinate or an author-related inconsistency, readers in the topically familiar condition often resolved the inconsistencies by suggesting that the author add specific information. In the topically

unfamiliar condition, however, no students used this method of resolution except in response to inconsistencies at the subordinate level. When these data were broken down by good and poor readers, differences by ability also emerged. While good readers generally recognized many more inconsistencies as inconsistencies than the poorer readers, this difference tended to be greatest when: (a) readers were presented with an inconsistency that appeared as a "direct" comment by the author in the nondialogue condition; and (b) when readers were asked to suggest what would make the inconsistency consistent. Poor readers did not perform as well as good readers in either instance.

Of importance to describing how readers negotiated an interpretation, these findings suggested that topic familiarity, the presence or absence of dialogue, as well as the nature of the information being interpreted all influenced how a reader perceives a text, as well as what the reader does to "make sense" of it. In particular, with respect to author-reader relationships, these data suggested that readers were apt to make different assumptions regarding authorship across different types of texts, and that these assumptions were also likely to have influenced both the outcomes of their interpretative efforts in addition to the measure they took to interpret the text message in a plausible way. In particular, readers made different assumptions regarding what authors might legitimately do across these text conditions, as well as what they themselves as readers might do in response to the actions of authors. It is as if what readers knew about a topic as well as what readers had been exposed to in terms of writing style had an impact on (a) what they were willing to infer about why an author stated what he or she stated; and (b) the method readers used to

resolve meaning. In two text conditions (the nonfamiliar and nondialogue conditions) readers, especially poor readers, were less willing to transact an interpretation outside of the mind set that the text was autonomous (i.e., they tended to search the text for a solution to the problem or blame themselves). While it may be reasonable for certain texts to sponsor more restrained interpretations, the present findings suggest that some readers, and especially poor readers, approached the texts with a reverence detrimental to the acquisition of any type of reasonable interpretation. For many of those readers, there was no sense of authorship and of necessity their responses, in particular their willingness to negotiate an interpretation, were restricted. In many ways, these data support Bruce's (1980) point that "Failure to understand the author's intentions can cause problems for all levels of comprehension, from 'getting the main idea' to subtle insights expected of skilled readers" (p. 380). These data also suggest that successful readers are self-initiating--they establish their own goals and rewrite strategies for making meaning. Unfortunately, in certain text situations they can be distracted from using them.

Investigation III

The third investigation, a collaborative effort by Cohen, Tierney, Starr, Fertig, Shirey, and Burke (in preparation) was more closely tied to examining systematically, from a plan-based analysis of speech acts (Cohen & Perrault, 1979), the various facets of the author-reader relationship; specifically, how a communicative contract is achieved in light of these constraints imposed by the written mode, the author's operationalization of his intentions, and a reader's interpretation of those intentions. The

data generated for this purpose were gathered in conjunction with a larger study whose purpose is "to investigate systematically the ways in which communicative acts are transformed or adjusted to accommodate the requirements of the modality in which they occur." Within the larger study the interactions of pairs of adult subjects were recorded--the expert of the pair providing all necessary instructions to a novice whose task was to assemble a toy water pump. This interaction was recorded across five communication modalities (telephone, teletype, face-to-face, audiotape, written). To generate an appropriate data-base for our analyses, we initially video-taped the interactions of 25 pairs of adult subjects as they assembled the water pump. Each pair of subjects included a "novice" and an "expert": the novice was unfamiliar with the water pump but was responsible for putting it together; the expert was thoroughly familiar with the water pump and was responsible for providing the novice with instructions for its assembly.

Each pair was assigned to one of the five communication modalities (telephone, teletype, face-to-face, audiotape, written). Of the five, the interactions which occurred via the face-to-face mode and the written mode are of primary interest for a number of reasons: (a) these two modalities are most disparate in terms of spatial and temporal commonality as well as concreteness of referents; (b) communication within the real world occurs most frequently across these two modalities; and (c) it is specifically the difference between the written and face-to-face modalities that we suspect causes many difficulties for readers. With respect to the other three modalities, communication via telephone and teletype differ from one

another only in modality, as they share an absence of spatial commonality and common referential set for participants. The use of audiotype on the other hand, was essentially equivalent to that of written instructions, except for the fact that it was oral, since novices could rewind and stop the tape when they wished but had only the tape upon which to rely.

There were a number of distinctive features of the design of the study which should be noted. First, all subjects were engaged in the same task thus increasing the likelihood that critical differences in discourse attributable to modality would surface. Because the pump assembly task imposed the same goals and subgoals on all subjects, regardless of modality, it was assumed that the structure of the discourse at the level of plans would also be, for the most part, invariant across modalities. Second, this study has been directed at the integration of speech act theory into formalisms for problem-solving. This is approached through the development of formal and computer models of the planning and plan recognition of a class of indirect speech acts in task-oriented discourse. Third, an exploratory technique was employed to provide greater access to the intentions of participants engaged in the written mode of communication. This technique involved a "think-aloud" procedure whereby writers engaged in writing were asked to think aloud, or introspect, about what they were trying to get a reader to do or think; likewise, as readers read a text aloud, they were asked to finger point as they read and regressed in the text, as well as verbalize what they thought the author was trying to get them to do or think. Both readers and writers were taken through a brief training session in which an investigator introduced the technique and its purpose, and monitored the subjects' efforts to implement

the technique during a practice warmup. At the onset of the experimental phase, the investigator removed himself from the immediate vicinity of the subjects, and only prodded subjects when a lull occurred in their thinking aloud. The procedure itself certainly has features in common with the think-aloud strategy described by Flower and Hayes (1981), particularly the fact that in the context of both strategies, subjects' thinking aloud occurs at the point of natural pauses, thus allowing the verbalizations to vary in many respects across subjects. Unlike Flower and Hayes (1979), however, our writers and readers were not only given a training and warmup period, but were specifically instructed to specify what they were thinking about one another. This was an important feature, as writers and readers were paired so that their think-alouds or introspective responses would occur in conjunction with the same text. In addition, the video set-up for recording the think-alouds was split-screened to capture what the writer or reader was actually writing or pointing to along with his or her general demeanor. The transcripts, which were then developed, reflected an attempt on our part to merge the responses of paired participants. (See Figure 2 for an example of the transcripts which were developed. Column 1 details an author's introspective-think-aloud, capitalization was used to indicate when writing occurred. Column 2 includes exactly what was written. The placement of the text alongside Column 1 coincides with its generation. Column 3 includes what the reader thought aloud as he or she read the text. Capitalization was used to indicate the reader's oral reading of the text.)

Insert Figure 2 about here.

Although the data are difficult to quantify, we have been particularly interested in findings forthcoming from an analysis of the writer-reader protocols; specifically, how such aspects of communication as turn-taking and checking or monitoring understanding occurred in the context of written discourse. In a much broader sense, we have attempted to examine how pragmatic aspects of communication are manifested in written discourse, and how they operate so as to maximize the fit between the predictive efforts of writers and the interpretative efforts of readers. For this purpose, we pursued a comparative analysis of the expressed concerns of writers and how their efforts to deal with those concerns manifested themselves in their texts, as well as in the extent to which readers' interpretive concerns and needs were adequately predicted. In a sense, we looked at written communication in terms of an implicit text, a real text, and an ideal text. An implicit text is what the writer expresses as his or her expectations for the text in terms of the reader's purposes (and expectations) as well as his or her own. A real text is what is actually produced. The ideal is what the reader expresses as his or her expectations for the author and the text. We recognize that our procedures tapped but a portion of this type of data, since a major limitation of the think-aloud procedure was that we would never know if readers and writers made fully explicit their expectations. We could only hope that since the method would foster a more active construction rather than retroactive reconstruction of readers' and writers' intentions, pragmatic aspects of written communication which have been obscure in the past would surface.

For purposes of analyzing the think-alouds, two coding manuals were

developed. One coding manual was used for purposes of recording instances of miscommunications which occurred--along with instances of reader uncertainty and complaint. A second coding manual detailed: (a) the concerns and information represented in the think-alouds of the writer, (b) the information represented by the text itself, and (c) the concerns and information read or addressed by the reader. In conjunction with the data generated from the other modalities, some interesting findings emerged.

As a result of our interest in "turntaking," we investigated the synchronization of actions across modes. We have been particularly interested in "turn-taking" as it occurred in conjunction with the successful completion of the task. In the face-to-face mode, turntaking of this type usually occurred in conjunction with the visual inspection of each subassembly operation; in the teletype mode, the expert typically used question marks, and the novice responded to each with a "done," "yes," or "okay;" in the telephone mode, the expert used rising intonation to indicate a request for a response (for example, an "okay") from the novice. In the written mode, however, when participants cannot interact (like teletype), we observed turntaking to manifest itself in some interesting ways. For example, the author often assumed the role of his or her own reader. In which case as the writer thought aloud, generated the text, and moved to the next set of subassembly directions, the writer would mark his or her composition with an "okay." It was as though the writer were interacting with the text as if he or she was the author and the reader. The "okay" marked a shift for the expert from a "turn" as the reader to a "turn" as the author. In addition, both authors and readers appeared to

understand the function of punctuation, format and certain descriptors even when that function was not made explicit in the text. Not infrequently, an author would simply describe an object and, without explicitly cuing, expect the reader to identify, gather and assemble. In contrast, when an object was to be identified but not assembled, authors would explicitly cue the reader to do just that. What these findings suggest is that there may be several conventions which both readers and writers deem legitimate, and for which there exist similar interpretations across readers and writers.

Our interest in a variety of aspects of the author-reader relationship, has led us to examine information represented in authors' think-alouds against their texts, as well as against their readers' think-alouds. In general, there was not a close match between what authors expressed during think-alouds and what was actually produced as text; however, the match between authors' think-alouds and readers' think-alouds was usually quite close. For example, if an author expressed the need to describe an object by noting a particular attribute of the object (e.g., color), the reader would very often key on this same attribute during his or her think-aloud. This occurred regardless of the fact that other attributes were included in the text as descriptors of this same object. On the other hand, some of the data which emerged from our analyses of the author-reader think-alouds did not support a relationship between author and reader which was quite so carefully interwoven. First, authors anticipated a great many more miscommunications than actually occurred. Second, while readers' think-alouds evidenced their awareness of author purpose, what they voiced as desirable characteristics of writer

communication of the instructional type often extended beyond what was represented by the text or addressed during authors' think-alouds. Readers often expressed a sense of frustration due to an author's failure to explain why they were doing what they were doing. Also, readers, were frequently critical of a writers' work, including the writer's choice of words, clarity, and accuracy. Despite those criticisms, however, it was apparent that readers were unwilling to let the tool (the text provided by the author) stand in the way of the successful achievement of their goals, even if it meant taking on the role of an author and making explicit what they perceived to be implicit.

The perspective of reader as author and author as reader raises some interesting questions regarding the notion of interaction. The data we have gathered in conjunction with the think-alouds have led us to consider the interaction which occurs during reading as much more than an interaction between text and reader. Rather, it might be more accurately depicted along three dimensions: the "turns" a reader takes with the author: the turns a reader takes with himself or herself as the reader. Certainly the findings which we have shared are preliminary; however, they do point out that the authors' sense of readership and the reader's sense of authorship do have some impact upon what authors and readers do.

Discussion

Across these three investigations we have tried to highlight how readership and authorship manifest themselves. We believe that our data subscribes to the view that the production and comprehension of texts are social events involving transactions similar to those which occur in the

context of negotiations between people. In our first investigation our data suggested that the reader-author relationship is quite susceptible to subtle variations in the identity of the author. In those situations when readers were familiar with the topic and more likely to identify with the author, they are more likely to recall more and, at the same time, be more critical. Our second investigation served to demonstrate how topic familiarity and discourse style influence the relationship established between readers and authors across successful and less successful reading experiences. Again the more successful readers were more self-initiating with respect to their role as readers and sense of what the author was trying to do. Our third study highlighted how shifts in the author-reader relationship are manifested for both readers and writers. Across the three investigations, then, our findings demonstrate the susceptability of the author-reader relationship to shifts and the extent to which any reading or writing experience may deteriorate with the demise of the author-reader relationship. In terms of the latter, our findings support a view to reading and writing which suggests that for any reader or writer transactions occur along two dimensions: readers with writers as well as readers and writers with "another self." A successful writer, as she composes a text, considers not only the transactions in which her readers are likely to engage, she is also her own reader. Likewise, a successful reader as he comprehends a text is self-initiating. While a successful reader responds reflexively and actively to writers, he does his own meaning making, engaging in a transaction with himself as the writer.

The suggestion that the writer is his or her own reader is not novel.

In conjunction with studying the composing process, including revision and the difficulties writers encounter while composing, several researchers have begun to study and discuss the reading that occurs during writing (Atwell, 1980; Perl, 1979; Rose, 1980). Their research suggests, as our data indicates, that writers spend a great deal of time reading and rereading; that the reading that writers do serves different purposes (for example, distancing writers from their own work, problem-solving, discovering and monitoring what has been written); and that the quality of these reading experiences seem to be closely tied to successful or less successful writing products. While these researchers have begun to define the nature of reading during writing in conjunction with the amount and nature of the text being read and written, less thoroughly investigated is how, when and why reading proceeds at different moments during a variety of composing experiences. The interaction of what has been written, planned, read, with the writer's other self--the reader--has yet to be fully developed and grounded in theory.

The suggestion that readers are themselves writers is less common. Our data suggested that the responses of readers assumed a reflexive quality as if readers were rewriting the text that they were reading. Sometimes the rewriting appeared to be occurring in collaboration with the perceived author of the text being read; sometimes it appeared as if the reader had decided what he needed to know or do and compose meaning with little regard for collaboration. These responses to the text appeared to occur as readers became involved in "coming to grips" with their own goals and understandings at the same time as they were dealing with the author's goals, assumptions and suggestions. In general, it serves to remind us

that successful reading is more akin to composing than regurgitation of what was stated or merely matching what was written with one's own knowledge.

It is as if the position Petrosky (1982) recently proposed in his paper, From story to essay: reading and writing serves to acknowledge this point of view:

> ...one of the most interesting results of connecting reading, literary and composition theory and pedagogy is that they yield similar explanations of human understanding as a process rooted in the individual's knowledge and feelings and characterized by its fundamental "putting together"--its fundamental constructiveness--as the act of making meaning, whether it be through reading, responding or writing. When we read, we comprehend by putting together impressions of the text with our personal, cultural, and contextual modes of reality. When we write, we compose by making meaning from available information, our personal knowledge, and the cultural and contextual frames we happen to find ourselves in. Our theoretical understandings of these processes are converging, as I pointed out, around the central role of human understanding--be it of texts or the world--as a process of composing.

Our position, then, is that central to our understanding the nature of reading is an understanding that reading and writing are social events involving multi-dimensional transactions between readers, writers, readers as writers and writers as readers. While it is granted that these notions are rudimentary, they provide some initial steps and empirical support for increasing our understanding of reading and writing processes as well as their interrelationships.

Certainly, the notion of reader as writer and writer as reader suggests a collaboration between readers and authors which is much more directed inward and multifaceted than previously appreciated in accounts of reading. We do not mean that writers do not consider external readers and readers external writers. But we do suggest that readers and writers act

autonomously and even the perspective of an external reader or writer is determined to an extent, by the writer herself or reader himself.

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Example 1

Excerpts from Passages Used in Experiment 1

Passage 1

ARE YOU A SLAVE?

At State College, from which I was recently dismissed as a teacher,

At State College, where I am majoring in Social Psychology,

At State College, where I was recently appointed Vice-President in charge of personnel,

. . . the students and faculty have separate and unequal facilties. If a student enters into the faculty dining room, the faculty get uncomfortable, as though there were a bad smell. If a member of the faculty sat in the student cafeteria, they would be looked on with disdain by fellow faculty members. In at least one building there are even restrooms which students may not use . . . .

Passage 2

ARE YOU A SLAVE?

At J & B Enterprise, from which I was recently dismissed as Vice-President in Charge of Personnel,

At J & B Enterprise, where I am working as a clerk-typist,

At J & B Enterprise, where I was recently appointed Vice-President in charge of personnel,

. . . the office workers and executives have separate and unequal facilities. If an office worker enters into the executive dining room, the executives get uncomfortable, as though there were a bad smell. If one of the executives sat in the office workers' cafeteria, they would be looked on with disdain by fellow executives. In at least one building there are even restrooms which office workers may not use . . . .

EXAMPLE PROBES

Did the text clearly define the author's position on the issue raised in the text?

Was the author brief and to the point in the presentation of his/her arguments?

Were the arguments consistent with the purpose(s) of this text?

Do you think the author was addressing the article to you?

Do you think you could recognize the author by other material he or she has written?

Do you think the author highlighted information to which he or she knew you would relate?

Example 2

Excerpts from Passages Used in Experiment 2 Varying in Familiarity

Passage 1

THE TREEHOUSE

Mary had a problem, and this is the story of how she solved it. There were two things that Mary had always wanted. One was a place to be alone and the other was a place that she could use for bird watching. Mary decided that there was one way she could get both of these things. Her family was renting a home in the big city, and in the back yard, away from the house, they had a large tree. She made up her mind to build a treehouse in that tree. That way she could do the things she wanted to do by herself . . . .

Passage 2

THE NEW FACTORY

The Poly Plastic Bag Company has a problem. This is the story of how they solved it. There were two things that the Poly Plastic Bag Company had always wanted. One was a factory of its own and the other was offices that were out of the city. They decided that they could get both of these things. They were currently renting a factory in a big city. But near a quiet river out of the city, they owned a large block of land. They made up their minds to build a factory on that land . . . .

Example 3

Excerpts from Passages Used in Experiment 2 With and Without Dialogue

Passage 3

FLY

All over the world children like to play different games. In some countires, children enjoy playing a game called "Fly." It gets its name because to play the game you need to be able to leap through the air. Some people say that it is like flying through the air.

The game is very easy to learn and play. The only equipment you need to have is six sticks that are similar in size. The sticks need to be as long as a person's foot and about as big around as a person's thumb.

After the sticks are found, they are placed on the ground . . . .

Passage 4

FLY

Lisa and Mike were bored. It was Saturday, and they did not know what to do until Lisa had an idea.

"I know a game we can play that they play in some countries. You know children all over the world like to play different games," Lisa said.

Mike was interested and asked, "What is the game?"

"It is called Fly because to play the game you need to be able to leap through the air. Some people say you have to fly through the air," Lisa said. "You only need six sticks to play it."

It sounded like fun so they decided to try the game. Lisa and Mike gathered six sticks, each one about as long as their feet and as big around as their thumbs. They placed the six sticks on the ground . . . .

Figure 1

Categories of Student's Responses

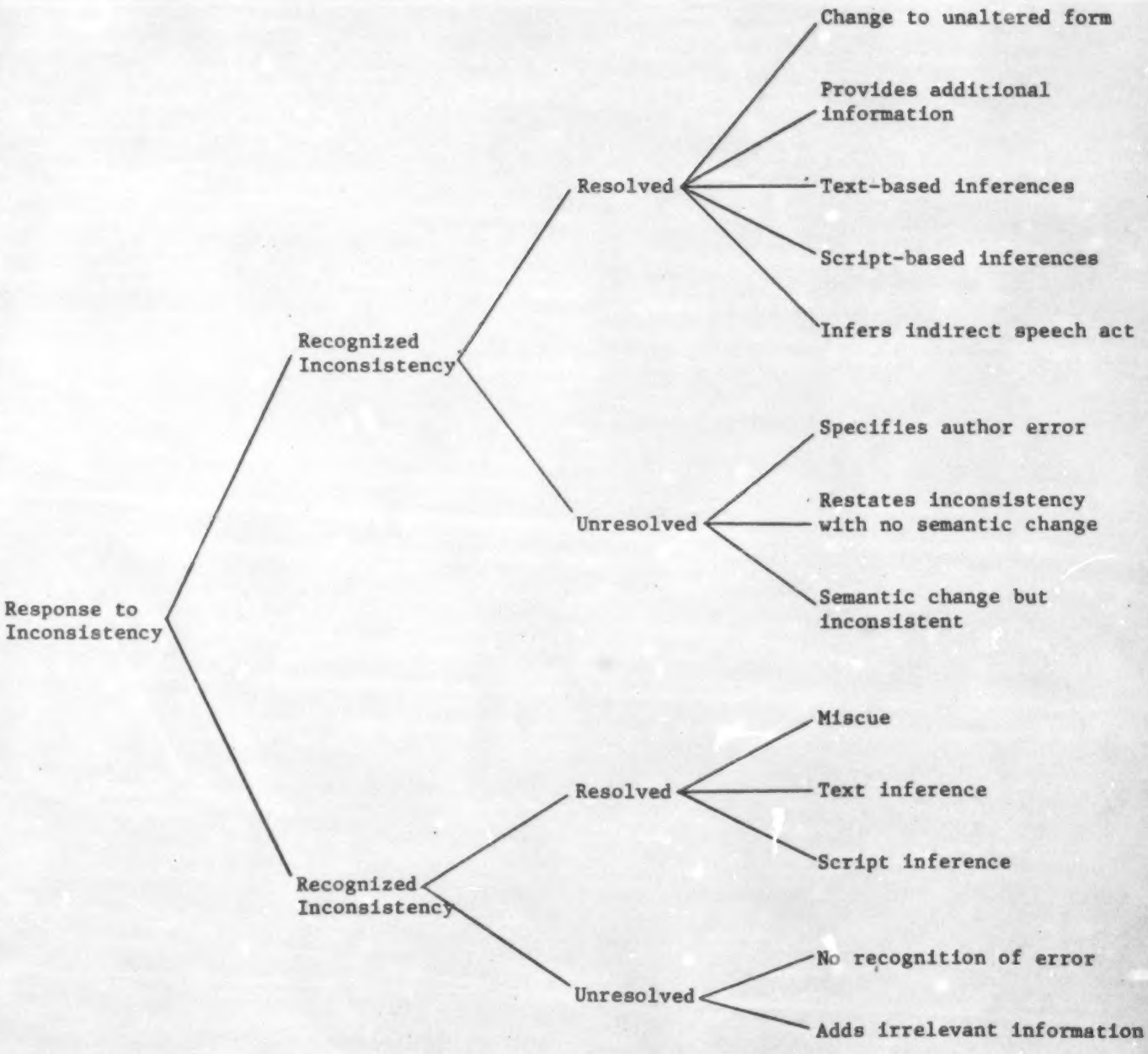

Figure 2

PROTOCOL SEGMENT

Writer	Text	Reader
On the table before we should start with the canister, I suppose. That's the basic piece. No--plunger. Plunger should be better since you have to something in that first, and you can't reach it otherwise. Okay, plunger first. All right. ON THE TABLE . . . . IS A PLUNGER . . WITH A RED cap--oh RED TOP. WITH A RED TOP AND A BLUE CAP AND A GREEN-- GREEN whatever, AND A GREEN-- GREEN END. I think you'll know what I mean. No confusion there, I don't think.	ON THE TABLE IS A PLUNGER WITH A RED TOP AND A BLUE CAP AND A GREEN END	ON THE TABLE IS A PLUNGER WITH A RED TOP, A BLUE CAP, AND A GREEN END. Okay, I just locate this. This is this. Okay, I don't know why--he is probably just going through describing the pieces and if--okay.
There's also a small red plastic item, very simple, which looks like a plug . . . ON THE TABLE. That should be the next piece, since that's an interior one. Okay, ON THE TABLE IS A SMALL RED PLUG-- SMALL SIMPLE RED PLUG, so we won't confuse it with this one. Okay. A SMALL SIMPLE--this one has a hole on it. Yeah, that one doesn't. Okay, A SMALL SIMPLE RED PLUG WITHOUT A HOLE. WITHOUT A HOLE. Okay.	ON THE TABLE IS A SMA LL SIMPLE RED PLUG HOLE	ON THE TABLE IS A SMALL SIMPLE RED PLUG WITHOUT A HOLE. Okay, this is--there are several red pieces here, but this seems to be the simplest without a hole. Okay. Now take, I am wondering what to do with it now,

Writer	Text	Reader
Take the plug. . . . Okay. Take the plug and put it into the interior hole--no--all right, that sounds good enough. If I--I have to specify, though, so he doesn't put it in that hole. Okay. Uh--huh. Take the red plug and put it into the inside hole. PLUG . . . AND INSERT IT . . . INTO . . . THE . . . HOLE INSIDE THE GREEN CAP INSIDE THE GREEN CAP ON THE PLUNGER. INSERT IT--Have to watch my pronouns here, or else he's not gonna know what I'm talking about. TAKE THE RED PLUG INSERT IT INTO THE HOLE INSIDE THE GREEN CAP--tss--redundant . . . INSIDE THE GREEN CAP ON THE PLUNGER. And we've already defined what that is.	TAKE THE RED PLUG AND INSERT IT INTO THE HOLE INSIDE THE GREEN CAP ON THE THE -THE- ON THE PLUNGER	TAKE THE RED PLUG AND INSERT IT INTO THE HOLE INSIDE THE GREEN CAP ON THE PLUNGER. Okay, he must mean this green cap and this hole here. Like that. TAKE THE RED PLUG AND INSERT IN THE--I am just going over this instruction again to make sure that I understood it and that I did it right. And I think that I did. It just seems to be, he is just telling me how to put it together.
Okay. Now we should go to this. All right. That's the next simplest step, since that goes inside that. All right. ON THE TABLE I described a clear plastic tube, one end threaded with two--na. A clear plastic cylinder with threads on one and and two small tubes opening on the side. Okay. That's a fairly clear description. ON THE TABLE, hopefully you can	ON THE TABLE	

Writer	Text	Reader
see what I mean by it. . . . THE TABLE . . . PLASTIC CYLINDER, WITH THREADS AT ONE END u-u-uh, WITH THREADS AT ONE END AND TWO TUBES . . . TWO TUBES IN THE SIDE--on the side? IN THE SIDE. Okay. Now to clarify things, I better specify which end is top and which end is bottom. Make it easy, I'll say that the threads are the bottom. Therefore, after that I can always refer to whatever it is goes up, whatever it is goes down. Makes it easier. THE END WITH THE THREADS SHALL BE DEFINED AS THE BOTTOM. . . . THREADS . . . yuh . . . AS THE BOTTOM.	IS A CLEAR PLASTIC CYLINDER WITH THREADS AT ONE END AND TWO TUBES IN THE SIDE THE END WITH THE THREADS SHALL BE DEFINED AS THE BOTTOM	ON THE TABLE IS A CLEAR PLASTIC CYLINDER WITH THREADS AT ONE END AND TWO TUBES IN THE SIDE. THE END WITH THE THREADS SHALL BE DEFINED AS THE BOTTOM. Okay, it appears to be this piece. He is just going through describing pieces that probably need for the next portion of the assembly. Okay.
Okay. Now the next step should be logically the plunger. All right, you take the plunger and we put it inside the clear plastic tube. Put it in the top-- okay, we've already defined that--of the clear plastic tube, fitting it all the way in--okay, well, we'll leave that--one step at a time. Okay, fitting it all the way in . . . hup, green end first, green end--fine, so I don't say red end. Looks like the red end would fit anyway. Okay. Hopefully, he can see the idea of the plunger, the red end as being the handle and the bottom end as being the		

Writer	Text	Reader
thingamabob humph to press the water up and down. Okay. PLACE THE PLUNGER INTO THE TOP . . . OF THE CYLINDER, . . . GREEN END FIRST--t' GREEN END FIRST. Tfu-tfu-tfu tfu-tfu-tfu-tfu-tfu-tfu. Actually, it doesn't really matter how far he pushes it in, but . . . suppose it might be more secure if he pushed it all the way in. Uh . . . PLACE THE PLUNGER INTO THE TOP OF THE CYLINDER. GREEN END FIRST . . . PUSHING IT DOWN . . . DOWN until it's securely in. I think securely means about the same thing. . . . DOWN UNTIL THE GREEN PART IS SECURELY IN--GREEN CAP IS SECURELY IN.	PLACE THE PLUNGER INTO THE TOP OF THE CYLINDER GREEN END FIRST PUSHING IT DOWN UNTIL THE GREEN CAP IS SECURELY IN	PLACE THE PLUNGER INTO THE TOP OF THE CYLINDER GREEN END FIRST PUSHING IT DOWN UNTIL THE GREEN CAP IS SECURELY IN. Okay. If he defined up here the threads as the bottom, then if you put the plunger into the top, that is probably this end then, so PUSHING IT IN UNTIL THE GREEN CAP IS SECURELY IN.
All right, the next step should be to fit the blue cap onto it. All right Now, by this point he should've see that it looks very much like a syringe . . . if he's following my directions, or if I'm getting my directions across to 'im. Okay. FIT THE BLUE CAP--THE BLUE CAP . . . ONTO THE CYLINDER. And it's rather stubborn--so I better tell 'im to push hard. IT'S A TIGHT FIT. FIT THE BLUE CAP ONTO THE CYLINDER . . . IT'S A TIGHT FIT--(laughs)--SO YOU can force it--HAVE TO	FIT THE BLUE CAP ONTO THE CYLINDER IT'S A TIGHT FIT YOU	

Writer	Text	Reader
FORCE IT, ACTUALLY. That's so he doesn't worry about whether or not it's the right piece.	HAVE TO FORCE IT	Okay, now this next part says FIT THE BLUE CAP ONTO THE CYLINDER. IT IS A Ti-- IT'S A TIGHT FIT SO YOU'LL HAVE TO FORCE IT. So, this is just eh, another instruction, but it's got a warning in there like that it is a tight fit so that you won't be surprised at the amount of force that it will require to do this. And and be afraid that you are doing something wrong. Okay.